

WHAT IS CLAIMED IS:

1. A durably-wettable, liquid pervious web which comprises:

- (i) an apertured web selected from the group consisting of polymeric films and nonwovens; and
- (ii) a substantially continuous hydrophilic coating, less than about 10 microns thick, on at least one surface of the web, wherein said hydrophilic coating is applied to the web by a radiation curing process;

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wherein at least one surface of the durably-wettable, liquid pervious web has a Post Aging contact angle that is not more than about 60 degrees greater than the Pre Aging contact angle.

2. The durably-wettable, liquid pervious web of Claim 1 wherein at least one surface of the durably-wettable, liquid pervious web has a Post Aging contact angle that is not more than about 40 degrees greater than the Pre Aging contact angle.

3. The durably-wettable, liquid pervious web of Claim 2 wherein at least one surface of the durably-wettable, liquid pervious web has a Post Aging contact angle that is not more than about 20 degrees greater than the Pre Aging contact angle.

4. The durably-wettable, liquid pervious web of Claim 1 wherein at least one surface of the durably-wettable, liquid pervious web has a Post Washing contact angle that is not more than about 60 degrees greater than the Pre Washing contact angle.

5. The durably-wettable, liquid pervious web of Claim 1 wherein the treated web is prepared by radiation curing, on at least one surface of the treated web, of a curable composition, wherein said curable composition comprises at least one hydrophilic component having at least two olefinic groups per molecule and wherein said curable composition can be vaporized and 5 condensed on said surface of said web.

6. The durably-wettable, liquid pervious web of Claim 5 wherein said curable composition comprises monomeric materials having, on average, about at least two olefinic groups per molecule.

7. The durably-wettable, liquid pervious web of Claim 6 wherein said curable composition is selected from the group consisting of a diacrylate, mixtures of at least two diacrylates or a mixture of at least one diacrylate and at least one monoacrylate.

8. The durably-wettable, liquid pervious web of Claim 1 wherein the polymeric film is derived from a material selected from the group consisting of polyolefins, polyesters, and mixtures thereof.

9. The durably-wettable, liquid pervious web of Claim 8 wherein the polymeric film is derived from a material selected from the group consisting of polyethylene, polypropylene, poly(1-butene), poly(2-butene), poly(1-pentene), poly(2-pentene), poly(3-methyl-1-pentene), poly(4-methyl-1-pentene), 1,2-poly-1,3-butadiene, 1,4-poly-1,3-butadiene, polyisoprene, blends thereof, random copolymers thereof, and block copolymers thereof.

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10. The durably-wettable, liquid pervious web of Claim 1 wherein said polymeric film is a macroscopically expanded, three-dimensional film.

11. The durably-wettable, liquid pervious web of Claim 1 wherein said apertures comprise a pattern of tapered capillaries, the capillaries having a base opening in the plane of the web and an apex opening remote from the plane of the web.

12. A durably-wettable, liquid pervious web which comprises:

- (i) an apertured web selected from the group consisting of polymeric films and nonwovens; and
- (ii) a substantially continuous hydrophilic coating, less than about 10 microns thick, on at least one surface of the web, wherein said hydrophilic coating is applied to the web by a radiation curing process;

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wherein at least one surface of the durably-wettable, liquid pervious web has a Post Washing contact angle that is not more than about 60 degrees greater than the Pre Washing contact angle.

13. The durably-wettable, liquid pervious web of Claim 12 wherein at least one surface of the durably-wettable, liquid pervious web has a Post Washing contact angle that is not more than about 40 degrees greater than the Pre Washing contact angle.

14. The durably-wettable, liquid pervious web of Claim 12 wherein the durably-wettable, liquid pervious web is prepared by radiation curing, on at least one surface of the web, of a curable composition, wherein said curable composition comprises at least one hydrophilic

component having at least two olefinic groups per molecule and wherein said curable composition
5 can be vaporized and condensed on said surface of said web.

15. The durably-wettable, liquid pervious web of Claim 14 wherein said curable composition comprises monomeric materials having, on average, about at least two olefinic groups per molecule.

16. The durably-wettable, liquid pervious web of Claim 15 wherein said curable composition is selected from the group consisting of a diacrylate, mixtures of at least two diacrylates and a mixture of at least one diacrylate and at least one monoacrylate.

17. The durably-wettable, liquid pervious web of Claim 12 wherein the web is derived from a material selected from the group consisting of polyolefins, polyesters, and mixtures thereof.

18. The durably-wettable, liquid pervious web of Claim 17 wherein the web is derived from a material selected from the group consisting of polyethylene, polypropylene, poly(1-butene), poly(2-butene), poly(1-pentene), poly(2-pentene), poly(3-methyl-1-pentene), poly(4-methyl-1-pentene), 1,2-poly-1,3-butadiene, 1,4-poly-1,3-butadiene, polyisoprene, blends thereof, random 5 copolymers thereof, and block copolymers thereof.

19. The durably-wettable, liquid pervious web of Claim 12 wherein said web is a macroscopically expanded, three-dimensional film.

20. The polymeric web of Claim 12 wherein said apertures comprise a pattern of tapered capillaries, said capillaries having a base opening in the plane of the web and an apex opening remote from the plane of the web.

21. An absorbent article comprising a durably wettable, liquid pervious topsheet, wherein said topsheet comprises the durably wettable, liquid pervious web of Claim 1.

22. An absorbent article comprising a durably wettable, liquid pervious topsheet, wherein said topsheet comprises the durably wettable, liquid pervious web of Claim 12.

23. The absorbent article of Claim 21 wherein said durably wettable, liquid pervious web comprises a polymeric film derived from a material selected from the group consisting of polyolefins, polyesters, and mixtures thereof.

24. The absorbent article of Claim 23 wherein the polymeric film is selected from the group consisting of polyethylene, polypropylene, poly(1-butene), poly(2-butene), poly(1-pentene), poly(2-pentene), poly(3-methyl-1-pentene), poly(4-methyl-1-pentene), 1,2-poly-1,3-butadiene, 1,4-poly-1,3-butadiene, polyisoprene, blends thereof, random copolymers thereof, and block copolymers thereof.

25. The absorbent article of Claim 21 wherein said polymeric film is a macroscopically expanded, three-dimensional film.

26. The absorbent article of Claim 21 wherein said apertures comprise a pattern of tapered capillaries, said capillaries having a base opening in the plane of the web and an apex opening remote from the plane of the web.

27. The absorbent article of Claim 21 wherein the topsheet is prepared by radiation curing, on at least one surface of the polymeric film, of a curable composition, wherein said curable composition comprises at least one hydrophilic component having at least two olefinic groups per molecule and wherein said curable composition can be vaporized and condensed on said surface of said polymeric film.

28. The absorbent article of Claim 27 wherein said curable composition comprises monomeric materials having, on average, about at least two olefinic groups per molecule.

29. The absorbent article of Claim 28 wherein said curable composition is selected from the group consisting of a diacrylate, mixtures of at least two diacrylates and a mixture of at least one diacrylate and at least one monoacrylate.

30. A radiation curing process for making a durably wettable, liquid pervious web, the process comprising:

(a) providing a vacuum chamber containing:

5 (i) at least one moveable support,
(ii) at least one vaporizer having at least one vapor outlet mounted adjacent to the upstream portion of each moveable support,
(iii) at least one curing means mounted adjacent to the downstream portion of each moveable support, and
(iv) at least one means for maintaining each moveable support at a temperature below that of each vaporizer;

10 (b) providing a web selected from the group consisting of polymeric films, apertured polymeric films, nonwovens and apertured nonwovens;

15 (c) placing said web in thermal contact with each moveable support in a manner permitting at least one surface of said web to move sequentially past each vapor outlet and each curing means;

20 (d) evacuating gas from said chamber until the pressure within said chamber is less than about 1×10^{-2} Torr;

(e) selecting a curable composition having a average molecular weight between 150 and 1000 grams per mole, and a vapor pressure in the range of 1×10^{-1} Torr at standard temperature and pressure;

(f) metering said curable composition into each inlet portion of each vaporizer;

(g) vaporizing said composition within each vaporizer;

(h) moving each support at a speed sufficient to pass said web sequentially past each vapor outlet and said curing means;

25 (i) condensing a film of said component on at least one surface of said web;

(j) activating said curing means whereby a substantially continuos film, having a thickness of less than about 10 microns, is formed on at least one surface of said web.

(k) where said web is unapertured, aperturing said web.

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31. The process of Claim 30 wherein said curable composition comprises at least one hydrophilic component having at least two olefinic groups per molecule and wherein said curable composition can be vaporized and condensed on said surface of said web.

32. The process of Claim 31 wherein said curable composition comprises monomeric materials having, on average, about at least two olefinic groups per molecule.

33. The process of Claim 32 wherein said curable composition is selected from the group consisting of a diacrylate, mixtures of at least two diacrylates and a mixture of at least one diacrylate and at least one monoacrylate.

34. The process of Claim 30 wherein the process further comprises the step of cleaning the surface of said web by exposing the surface of said web to plasma conditions prior to depositing said curable component on said surface of said web.

35. The process of Claim 34 wherein the step of cleaning the surface of said web comprises introduction of a gas stream comprising a material selected from the group consisting of Ar, O₂, and mixtures thereof.

36. The process of Claim 30 further comprising the step of cleaning the surface of said web by exposing the surface of said web to a energy source prior to depositing said curable component on said surface of said web.

37. The process of Claim 36 wherein the energy source is selected from the group consisting of infra red, electron beam, thermionic and ultra violet radiation.

38. The process of Claim 37 wherein the energy source is a electron beam.

39. The process of Claim 30 wherein said web is a macroscopically expanded, three-dimensional web.

40. The process of Claim 30 wherein the apertures of said web comprise a pattern of tapered capillaries, said capillaries having a base opening in the plane of said web and an apex opening remote from the plane of said web.